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READING KAREN BARAD'S INTERVIEW IN NEW MATERIALISM: INTERVIEWS & CARTOGRAPHIES

GENERICSCIENCE AGENTIELLER REALISMUS, BOHR, MATERIALISM, QUANTUM PHYSICS

"Agential realism is not a manifesto, it does not take for granted that all is or will or can be made manifest. On the contrary, it is a call, a plea, a provocation, a cry, a passionate yearning for an appreciation of, attention to the tissue of ethicality that runs through the world."

– Karen Barad, *New Materialism: Interviews & Cartographies*

Karen Barad's *agential realism* is not about agents or actors in the sense of a Latourian reading of that term. In her new work *Meeting the Universe Halfway* she describes her use of the term as "an epistemological-ontological-ethical framework that provides an understanding of the role of human and nonhuman, material and discursive, and natural and cultural factors in scientific and other social-material practices, thereby moving such considerations beyond the well-worn debates that pit constructivism against realism, agency against structure, and idealism against materialism" (26).¹

In her interview she reiterates many of her basic themes of critical thinking over critique, diffractive methodology, intra-action, feminist theory, and the inseparability of epistemology, ontology, and ethics. "Ethics and justice are at the core of my concerns":

"Agential realism is not a manifesto, it does not take for granted that all is or will or can be made manifest. On the contrary, it is a call, a plea, a provocation, a cry, a passionate yearning for an appreciation of, attention to the tissue of ethicality that runs through the world... for me, ethics is not a concern we add to the questions of matter, but rather is the very nature of what it means to matter."

Critical Thinking over Critique

"Critique has been the tool of choice for so long, and our students find themselves so well-trained in critique that they can spit out a critique with the push of a button" (49).²

We can think of critique in the philosophical sense as an analysis that offers by way of the critique method either a rebuttal or a suggestion of further expansion upon the problems presented by the topic of that specific written or oral argumentation. Against this type of methodology Barad offers her own critical approach of the "practice of diffraction, of reading diffractively for patterns of differences that make a difference" (49). She specifies this approach as neither eliminativist in the sense of a subtractive methodology, but rather as a "creative and visionary" investigation or exploration.

She explains that her defractive methodology is a method of diffractively reading insights through one another, building new insights, and attentively and carefully reading for differences that matter in their fine details, together with the recognition that there intrinsic to this analysis is an ethics that is not predicated on externality but rather entanglement (50). The crux of her argument centers on the need to overcome such dualisms of a nature/culture dichotomy, and instead brings matter and meanin in relation to each other again through a defractive practice of studying both the nature of the apparatus and also the object in their entanglement (52).

She tells us that there is a big difference between her use of defractive methodology as a critical tool as compared to its use as a tool within classical physics and that this is important to remember as a distinction. "It underlines the fact that knowing is a direct material engagement, a cutting together-apart, where cuts do violence but also open up and rework the agential conditions of possibility. There is not this knowing from a distance. Instead of there being a separation of subject and object, there is an entanglement of subject and object, which

is called the “phenomenon”(52). What she is presenting is a way of reading the defractions and entanglements among what are usually dichotomized separate domains of knowledge, and instead bringing them together and “diffractively reading them through one another for their various entanglements, and by being attentive to what gets excluded as well as what comes to matter” (53). In this way we can bring the Sciences and Humanities back into relation with each other without folding either into one or the other.

In her feminist reading she would opt out of a Butlerian “clash of apparatuses” which are never successful in completely embodying femininity, because there are contradictory requirements” (54). Instead she opts for an agential realism that does not require that kind of clash of apparatuses, because intra-actions to begin with are never determining, even when apparatuses are reinforcing (54). She tells us that the notion of intra-action is a key element of my agential realist framework:

The neologism “intra-action” signifies the mutual constitution of entangled agencies. That is, in contrast to the usual “interaction,” which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. It is important to note that the “distinct” agencies are only distinct in a relational, not an absolute, sense, that is, agencies are only distinct in relation to their mutual entanglement; they don't exist as individual elements (MTUH 33).

In her interview she clarifies this by telling us that intra-action “is not just a kind of neologism, which gets us to shift from interaction, where we start with separate entities and they interact, to intra-action, where there are interactions through which subject and object emerge, but actually as a new understanding of causality itself” (55). The point being that she is enforcing a decenterment of the human and allowing for a broader conception in which the non-human forces become a part of the diffractive analysis in that the “specificity of intra-actions speaks to the particularities of the power imbalances of the complexity of a field of forces” (55).

All this leads into her stance toward a *posthumanist perspective* which in Meeting the Universe Halfway she described as a framework within her conception of agential realism that provides a posthumanist performative account of technoscientific and other natural cultural practices. By “posthumanist” she means to signal the crucial recognition that nonhumans play an important role in naturalcultural practices, including everyday social practices, scientific practices, and practices that do not include humans. But also, beyond this, that her use of “posthumanism” marks a refusal to take the distinction between “human” and “nonhuman” for granted, and to found analyses on this presumably fixed and inherent set of categories. As she states it “any such hardwiring precludes a genealogical investigation into the practices through which “humans” and “nonhumans” are delineated and differentially constituted. A posthumanist performative account worth its salt must also avoid cementing the nature-culture dichotomy into its foundations, thereby enabling a genealogical analysis of how these crucial distinctions are materially and discursively produced” (MTUH 32).

As for her investment in feminism she tells us she always teach physics in her feminist classes, in part precisely because it calls into question the exceptionally narrow framing of scientific concerns and scientific literacy (59). She starts from the question “Who is responsible for engaging with science?” because it brings up key issues within a feminist perspective ones concerning “issues about matter and space and time and so on” (59). Using the wave/particle problem that both Einstein and Bohr saw enacted in the two-slit experiment, Einstein seeing that it would lead to self-contradictory conclusions for quantum mechanics, while for Bohr what was unique in the experiment was “if you do this experiment, you have now revised the apparatus. And what we observe in any experiment is a *phenomenon* or entanglement or the inseparability of the apparatus and the observed object” (59). What Bohr was suggesting to Einstein was that if he were to make the adjustment to the two-slit apparatus he suggested, he is going to get a particle pattern, not a diffraction pattern. The point of all this for Barad is that it leads to the notion that the properties that we measure are not attributable to independent objects, that independent objects are abstract notions; instead, what is needed is an analysis of the actual objective referent which is the phenomenon—the “intra-action of what we call the electron and the apparatus” (59). So if we change the apparatus we change the ontological status of the phenomenon.

With this we come to central tenet of her agential realist ontology that things or objects or relata do not precede their relations, but that they emerge through particular intra-actions. This came out of her study on Bohr's work in quantum theory. She tells us in the interview that “when we make a measurement, what happens is that it is not a matter of disturbing something and our knowledge is uncertain as a result, but rather there are not inherent properties and there are not inherent boundaries of things that we want to call entities before the measurement intra-action. That is, Bohr is saying that things are indeterminate; there are no things before the measurement, and that the very act of measurement produces determinate boundaries and properties of things. So, his is an ontological principle rather than an epistemological one” (62).

The battle between Einstein and Bohr and Heisenberg were never resolved to any of the participants liking, but Barad tells us that an amazing thing is that we now have at our disposal a way of doing just that:

“We can do experimental metaphysics now, which of course is just an indicator of the fact that there has never been a sharp boundary between physics, on the one hand, and metaphysics or philosophy, on the other. So there is an amazing and really astonishing experiment that physicists have only been able to do in the past decade or so since previously it was not technologically possible.

Was Einstein right and do I catch the electron being both a particle and a wave showing that quantum theory is self-contradictory? Or is Bohr right that once I actually go ahead and measure which-slit, now I get a particle pattern and the interference pattern is gone? (63) At the time these men performed their ideas as thought-experiments, but we now live in a time when these experiments can actually be realized with material apparatuses. She tells us that recently physicists have very cleverly made a which-slit detector that if used proves without a

doubt that Niels Bohr ultimately won the argument. She describes it as a shutter being open or closed. To decide if it is a wave or particle we can measure the information that is erased by either opening or closing the slits *after* the fact.

"...afterwards I am going to decide whether or not to open the shutters and erase the information about which slit it goes through. That is called "delayed choice" mode. And if I trace the ones whose which-slit information is erased, I get a diffraction pattern. In other words, after the rubidium atom has already hit, I am able to determine whether or not it had behaved like a particle or a wave. In other words, whether or not it had gone through a single slit at a time, like a particle will, or gone through both slits at the same time like a wave will. In other words after it has already hit the screen and gone through the apparatus, I am able to determine its ontology, afterwards"(65) .

The surprising thing about this ability to determine the ontological status afterwards is that it allows the physicist the "ability to change the past" (66). But she questions such "nostalgic fantasies", saying, "is this really what this experiment is telling us about what is possible?" (66) Instead she offers a different reading of the phenomena, one that incorporates what the insights from feminist theory, from post-structuralist theory, and things that Cultural Studies have been telling us for some time that "what is going on actually is *the making of temporality*" (66). Ultimately is the entanglement of intra-active phenomenon that are exposed in the articulation and re-synchronization of various material practices that shows us that time is no longer universally *given* but emerges through these very material practices themselves. And this time is no longer that of the eternal return of the same but "the original diffraction pattern doesn't return, a new one is created, one in which the diffraction (that is, entanglement effects) is a bit challenging to trace" (66). It is the power of intra-activity at work: the "past" was never simply there to begin with, and the "future" is not what will unfold, but "past" and "future" are iteratively reconfigured and enfolded through the world's ongoing intra-activity. (66) All of this leads back to her feminist stance as she tells us:

"My passion for my work is utterly and completely grounded, and hopefully always with its feet attached to the ground, in questions of justice and ethics. This is what totally drives me. So I think there is a way in which the physics here actually helps me to bring an important materialist sense to Derridean notions of justice-to-come. That is not justice which we presume we know what it is in advance and which is forever fixed." (67)

As a final note she describes her agential realism as an account of matter that is a dynamic expression/articulation of the world in its intra-active becoming. All bodies, including but not limited to human bodies, come to matter through the world's iterative intra-activity, its performativity. Boundaries, properties, and meanings are differentially enacted through the intra-activity of mattering. Differentiating is not about radical exteriorities (we saw that in the experiments I just talked about) but rather what I call agential separability. That is, differentiating is not about Othering, separating, but on the contrary, about making connections and commitments. So the very nature of materiality itself is an entanglement. Hence, what is on the other side of the agential cut is never separate from us. Agential separability is not individuation.

(70)

This puts the concern for *ethics* at the center of her ontology. "Ethics is about mattering, about taking account of the entangled materializations of which we are part, including new configurations, new subjectivities, new possibilities... this way of thinking ontology, epistemology, and ethics together makes for a world that is always already an ethical matter" (70).

1. Karen Barad. Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning. Kindle Edition.

2. Rick Dolphijn and Iris van der Tuin. New Materialism: Interviews & Cartographies. Open Humanities Press (2012)

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